United States
Environmental Protection
Agency

Office of Emergency and
Remedial Response
Washington, DC 20460

Superfund

SUPERFUND CHEMICAL DATA MATRIX -- WINDOWS USER'S VERSION

USER'S GUIDE

Additional Copies of this document may be obtained from:

National Technical Information Service (NTIS)
U.S. Department of Commerce
5285 Port Royal Rd.
Springfield, VA 22161
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Acronyms

AALAC	Ambient Aquatic Life Advisory Concentrations
AWQC	Ambient Water Quality Criteria
BCF	Bioconcentration Factor
CAS	Chemical Abstracts Service
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act of 1980
CPI	Characters per Inch
CPU	Central Processing Unit
EPA	Environmental Protection Agency
FR	Federal Register
HRS	Hazard Ranking System
ID	Identifier
KB	Kilobytes
MB	Megabytes
MCL	Maximum Contaminant Level
MCLG	Maximum Contaminant Level Goal
NAAQS	National Ambient Air Quality Standards
NESHAPS	National Emission Standards for Hazardous Air Pollutants
NPL	National Priorities List
PREscore	Preliminary Ranking Evaluation Score
RAM	Random Access Memory
SARA	Superfund Amendments and Reauthorization Act of 1986
SCDM	Superfund Chemical Data Matrix
SCDMWIN	Superfund Chemical Data Matrix Windows User Version
UMTRCA	Uranium Mill Tailings Radiation Control Act
VGA	Video Graphics Array

PREFACE

The Superfund Chemical Data Matrix-Windows User Version (SCDMWIN) is a read-only, single-user program designed to view and print tables of selected data, Hazard Ranking System (HRS) factor values, and benchmarks for contaminants commonly found at sites evaluated using the HRS. Version 1.0 of SCDMWIN, released in September of 1997, is the first version of this Windows based program.

The SCDMWIN User's Guide (Read-Only Version) explains how to operate SCDMWIN. It should be consulted by anyone who uses SCDMWIN. The read-only version is not intended to allow the user to alter the data used by the SCDMWIN. The user is able to view and print reports on the source tables, chemical tables, unit conversions, references, data selection hierarchy, and chemical properties.

For further information, refer to the Superfund Chemical Data Matrix report (EPA/540/R-96/028) that accompanies the software. Users may also contact the PREscore/SCDM Helpline at (703) 519-1046 or call EPA's Office of Emergency and Remedial Response at (703) 603-8856.

SECTION 1

INTRODUCTION

The Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA) as amended addresses actual or potential releases of hazardous substances into the environment from uncontrolled hazardous waste sites. Section 105(8)(A)[1] requires the development of "criteria for determining priorities among releases and threatened releases throughout the United States for the purpose of taking remedial action ...." The U.S. Environmental Protection Agency (EPA), on behalf of the President, developed the Uncontrolled Hazardous Waste Site Ranking System in response to this requirement (47 FR 31190, July 16, 1982). The Hazard Ranking System (HRS) is a mathematical evaluation system used to determine the relative risk posed by a hazardous waste site based on factors reflecting the likelihood of a hazardous release, the characteristics of materials at a site, and the populations likely to be affected by the release. More than 1,300 sites have been placed on the EPA's National Priorities List (NPL) using this HRS.

The Superfund Amendments and Reauthorization Act of 1986 (SARA) required EPA to revise the HRS to better reflect the relative threat posed by a site. The revised HRS was promulgated in 1990 (55 FR 51532, December 14, 1990) and includes additional factors to reflect the physical and chemical parameters of hazardous substances. The revised HRS contains more sophisticated mechanisms for assessing toxicity and persistence in the environment, substance mobility, potential forbioaccumulation, and the introduction of environment- and health-based benchmarks.[2]

The Superfund Chemical Data Matrix (SCDM) is a database containing HRS factor values and benchmark values for 422 hazardous substances commonly found at sites evaluated using the HRS.[3] Additionally, the database includes physical, chemical, and radiological data used to calculate HRS factor values (see the Superfund Chemical Data Matrix report for further information).

1.1 SYSTEM OVERVIEW

SCDMWIN incorporates data from 28 sources or references. SCDMWIN uses data from these sources to assign HRS factor values and benchmarks which in turn are used to calculate a HRS score for a hazardous waste site. An independent software package (PREscore) imports these benchmark and factor values to produce a preliminary site score. SCDMWIN is an updated, Windows version of the previous DOS-based program titled SCDM-Data Manager (DM).

The read-only version of SCDMWIN performs two primary functions: viewing data from the 28 reference sources, the HRS factor values and benchmarks, and printing reports of these data. Also included in SCDMWIN is additional data about the chemicals, the sources, the hierarchy assignments used to select data from the sources, and other information.

The SCDMWIN program is organized into four primary menu screens: About, Search, SCDM Data, and Additional Info (see Figure 1.1). The *About* screen allows users to view data used to assign factor tables and benchmarks for the current software release, (i.e., reference information about the data sources, the hierarchy of assignments used to select data values from the sources, and a unit conversion table). The *Search* screen allows users to select the chemicals of interest for which they would like to review data. This selection criteria will be maintained for all subsequent lookups. In the *SCDM Data* screen, users choose the

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[1] Alternatively cited as Section 105(a)(8)(A) of CERCLA as amended by SARA.

[2] Benchmarks are regulatory dosage or concentration limits developed by or used in other agency Programs.

[3] SCDM contains 375 nonradioactive substances and 47 radionuclides.

reference source or the SCDM results data table they would like to view. Finally, the Additional Info screen contains data on chemical properties and a comparison of factor values from previous versions of SCDM data. From most screens, users are provided with the ability to either print data on the selected chemicals, or print a report for all chemicals. Each screen will be discussed in further detail in this document.

FIGURE 1.1 WELCOME TO SCDM SCREEN

1.2 HARDWARE REQUIREMENTS

The minimum recommended computer configuration is an IBM-compatible PC with a 25 MHz 80486 CPU, 16K RAM, a color monitor, one 1.44 MB floppy drive, and Windows 3.1. At this time, SCDMWIN only operates on a locally installed Windows package; users are not be able to operate SCDMWIN from a network Windows configuration. SCDMWIN requires approximately 15 MB of free space on the hard disk. Although SCDMWIN will run on a minimally configured computer, enhanced performance will occur with higher end equipment.

The print features of SCDMWIN takes advantage of any available LAN printers or local printers. No special print drivers are necessary.

SECTION 2

USING SCDMWIN

This section describes the installation process for SCDMWIN and provides operating instructions for each section. SCDMWIN is the first release of a software application that has been migrated from DOS to a Windows environment. While every attempt has been made to test the software on various setups, it is inevitable that some user problems may occur. Users are encouraged to share their experiences installing and operating SCDMWIN through the PREscore/SCDM Helpline or by completing the user feeback form provided in Appendix B.

2.1 INSTALLING SCDMWIN

The read-only version of SCDMWIN is available for installation through Internet access using a Web viewer or 1.44 MB floppy disks obtained from the Hotline.

2.1.1 Installing from the Internet

The SCDMWIN program can be downloaded and installed on your hard disk from the Internet via EPA's website (www.epa.gov) at the following address:

- www.epa.gov/superfund/oerr/products/prescore/scdm.htm

The SCDMWIN program runs on a Windows 3.1 platform and has been packaged in a self-extracting archive called OPENSCDM.EXE. Before downloading, create a directory C:\SCDMWIN on your hard drive. Then download OPENSCDM.EXE into the directory that you have created and perform the following steps:

- For Windows installation, from the File Manager, double-click on the C:\SCDMWIN\OPENSCDM.EXE archive. The archive will expand into usable files.

SCDMWIN can be run from the File Manager, or an icon may be added to a Windows group. To add a SCDMWIN icon to an existing group, (e.g., Applications), highlight the group, click on the File menu, New, Program Item, and hit the OK button. Enter the following information:

- Description Line: SCDMWIN
- Command Line: scdmwin.exe
- Working Directory: c:\scdmwin
- Shortcut Key: none

Click on the OK button, and a SCDMWIN icon will be automatically created in the existing program group. To add a new program group, click on the File menu, New, and Program Group and enter the following information :

- Description: SCDMWIN (or the description you want to appear below the group icon in the Windows Program Manager)
- Group File: may leave blank

After creating the program group, the SCDMWIN icon must be added to the group following the above instructions for adding an icon to an existing group.

2.1.2 Installing from a Floppy Disk

SCDMWIN may also be installed from the 1.44 MB floppy drive to the hard disk. For the following instructions, it is assumed that the floppy drive is A: and the hard disk is C:.

Substitute the correct drive letters if your configuration is different. Press <Enter> at the end of each typed command in DOS.

Making Backups of Distribution Diskettes

Before installing SCDMWIN, a copy of the original diskettes should be made for safekeeping. For each diskette, do the following through the File Manager in Windows:

- Place the first installation diskette in drive A:
- Highlight the A: drive icon in the Windows File Manager
- In the Disk menu, select Copy Disk, and hit OK
- Insert destination diskette in drive A: as prompted and hitOK
- Repeat for all diskettes

Copying SCDMWIN to a Hard Disk

Installing SCDMWIN to a hard disk from floppy diskettes is slightly different. Because the SCDMWIN program spans a number of diskettes, users will be "opening" the SCDMWIN files onto the hard drive rather than copying them. This installation diskettes will remain intact.

The hard disk must have at least 15 MB of free space. The installation diskettes contain a "zipped" file of all SCDMWIN system files. To "unzip" the files, thus installing the program, perform the following steps in DOS:

- Create a directory C:\SCDMWIN on your hard drive
- Insert the first installation disk into drive A:
- At the A:\ prompt, type the following:
  PKUNZIP OPENSCDM.ZIP C:\SCDMWIN <enter>
- Insert diskettes as prompted

After installation on the hard drive, follow the steps listed above in Installing from the Internet to add a program group or icon for the SCDMWIN program. If any of the program files become corrupted, follow the commands again to reinstall the program's system files.

2.1.3 Additional Installation Steps

To complete the installation process, the following command should be added to the autoexec.bat file before win.exe is loaded:

- C:\DOS\SHARE /F:5100 /L:500

In addition, the following lines should be added to thewin.ini file located in the c:\windows directory:

- [DBD]
  workdir=c:\scdmwin

- [IDAPI]
  dllpath=c:\scdmwin
  configfile01=c:\scdmwin\idapi.cfg

Changes to the autoexec.bat file and thewin.ini file can be conducted either through the Edit program in DOS or through the Notepad function in Windows.

2.2 Starting SCDMWIN

To start SCDMWIN from the File Manager, go to the C:\SCDMWIN directory and double-click on the SCDMWIN.EXE file. To start SCDMWIN from an icon, double-click on the SCDMWIN icon. Either of these actions will begin the SCDMWIN program.

The first screen that will appear is the Welcome to SCDM screen with the version number and date of release (see previous Figure 1.1). At the bottom of this screen are tabs for the four menu screens. To move between the main screen and the four menu screens, click on the tabs at the bottom of the page. To close any of the menu screens and return to the main screen, double click on the upper left hand corner of the screen, or click on any existing cancel buttons on the screens. Although users may navigate between screens by clicking on the visible parts underneath the top screen, once screens have been opened, to conserve memory resources, users should close each menu screen when finished. The main screen is also closed by double-clicking on the upper left hand corner of the screen. Closing the main screen will exit the user from SCDMWIN. To move the Welcome screen, or any other screen, in the event the screen is not centered on your monitor, move the mouse to the Welcome to SCDM border, click on the left mouse key, and drag the screen to the preferred location on the screen. To enlarge the screen, click on the (▲) key in the upper right hand corner. To minimize the screen, click on the (▼) key.

2.3 Operating SCDMWIN Screens

SCDMWIN has a variety of screens. Some screens offer menus while others display data. The following section provides a general overview for operating the SCDMWIN program. It includes directions for moving around the screens, closing screens, and printing options. The next chapter provides greater detail on the content and features of the screens.

2.3.1 Opening and Closing Screens

Opening and closing screens are simple processes. From the Welcome to SCDM screen, the four major menu screens can be opened by clicking on the corresponding tab. Other screens within the four menu screens are opened by clicking on buttons that may be labeled "OK" or on buttons with the name of the next screen. To close screens, users may perform one of the following activities:

- press Cancel button, if available;
- double click on the upper left corner of the screen; or
- click once on the upper left hand corner and choose Close from the menu.

Users may notice that when one of the four menu screens is closed and the user is returned to the Welcome to SCDM screen, the tab from the screen just exited remains highlighted. In this release, clicking on the already highlighted tab does not return the user to the screen just exited. To return to this screen, the user must highlight one of the other three tabs and exit that menu screen before being able to open the first screen again.

2.3.2 Moving Around Within a Screen

Most screens in SCDMWIN have the same features for moving around the screen. In the event any screen is not centered on the monitor, move the mouse arrow to the title banner of the screen, click on the left mouse key, and drag the screen to the center of the screen or any other desired location. To maximize the size of the screen, click on the up arrow in the right hand corner of the screen. Depending upon the resolution of the user's monitor, this may be necessary to view all of the data on the screen. If all of the data is not visible on the screen upon its opening or maximizing, scroll bars will be provided on the sides of the screen. These scroll bars can be used to move up and down, or left or right across the screen.

All screens that contain chemical information will have an additional tool at the top of the screen -- a navigator -- to move between chemicals. As discussed below in Section 3.3, the Search screen allows users to select one, more, or all chemicals at a time. Only data for the chemicals selected will be displayed on screens with chemical information. To view data from multiple chemical searches, use the navigator buttons on the top of the screen. The (▶) button moves through each selected chemical from the search list one at a time. The (▶|) button moves the user to the end of the list. A user can only choose to move in an available direction (e.g., if the user is on the first chemical, (◀) is not available because the user cannot scroll backwards from the first record).

2.3.3 Printing Options

Finally, all data viewing screens provide options for printing. SCDMWIN provides the option of printing the screen displayed or printing a report for all chemicals. Icons on the upper right portion of the screen activate these options. The button with the printer is the print screen option, and the hand holding a piece of paper is the report option. Idling the mouse on top of these buttons will show "hints" that remind the user of the function of the icon. The primary difference between these options is that the print screen option allows users to print the screen for the selected chemicals of interest. The report function, on the other hand, prints a report for all chemicals. The report function also allows users to print the report to a file instead of a printer. Each of these options are discussed further below.

Print Screen Option

Users may choose to print data only for the selected chemical(s) of interest. To perform this activity, click on the icon showing a printer. A print box will appear with three options. Users may choose to print the screen for:

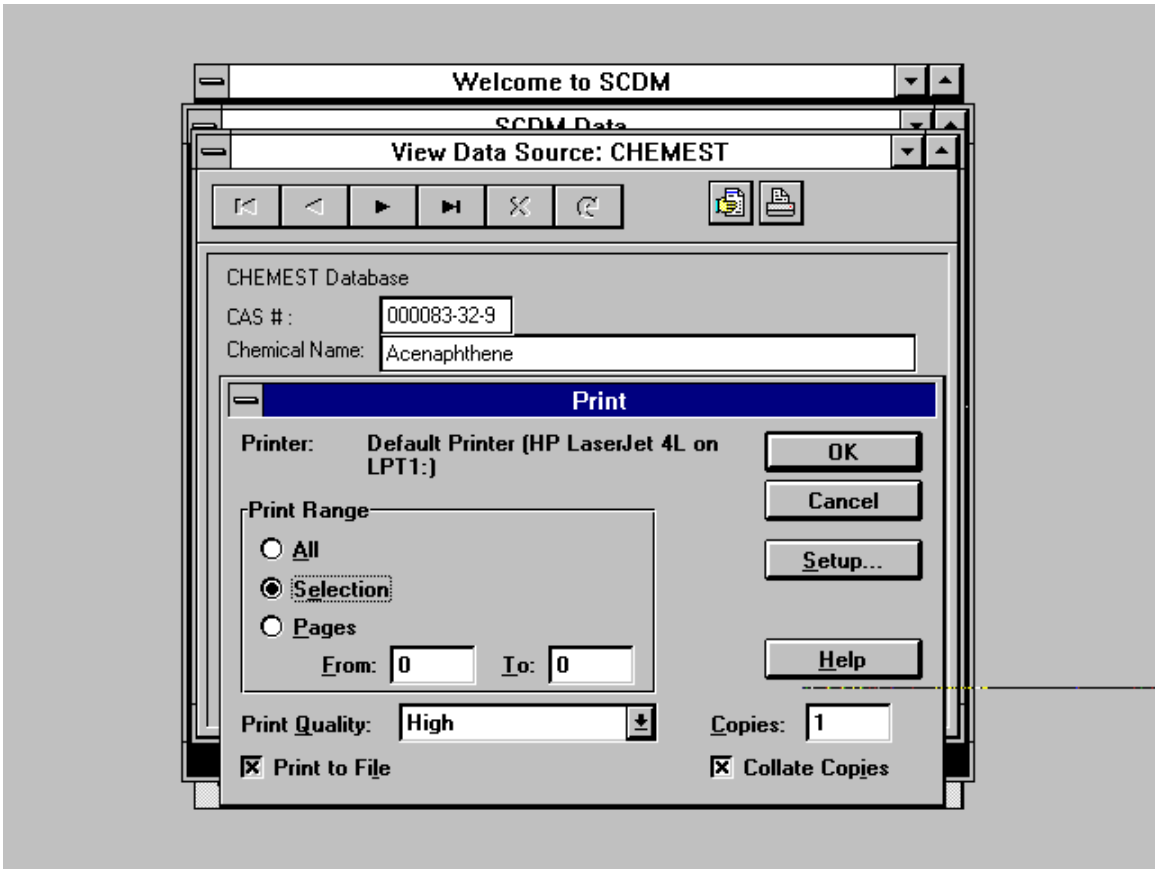
- all chemicals in the query;
- the selected chemical currently displayed on the screen; or
- a range of chemicals in the query.

The print screen option is identical across all SCDMWIN screens. Figure 2.1 shows the Print box and its options from a SCDM Data screen.

It is important to note that the print screen function will only print the image as it appears on the screen. For most screens, the data is completely visible when the screen is activated. For screens where data may not be completely visible, users may try maximizing the window by clicking on the upper arrow at the right hand corner of the screen. If all data are still not in view, it is due to the resolution of the user's screen. If changing the resolution is not an option, users may have to print the "screen" twice, i.e., print the first portion of the screen, then scroll down to the bottom and print the screen again to capture the second portion of the screen.

A few other notes about the print screen option are in order. Users may notice that when multiple chemicals are selected in the query, after printing the screen for a selected chemical in the middle of the query, the screen returns to the first chemical in the query. Also, after the print screen function is complete, the screen repaints itself. This will cause the screen to briefly disappear and reappear.

FIGURE 2.1 PRINT OPTIONS SCREEN



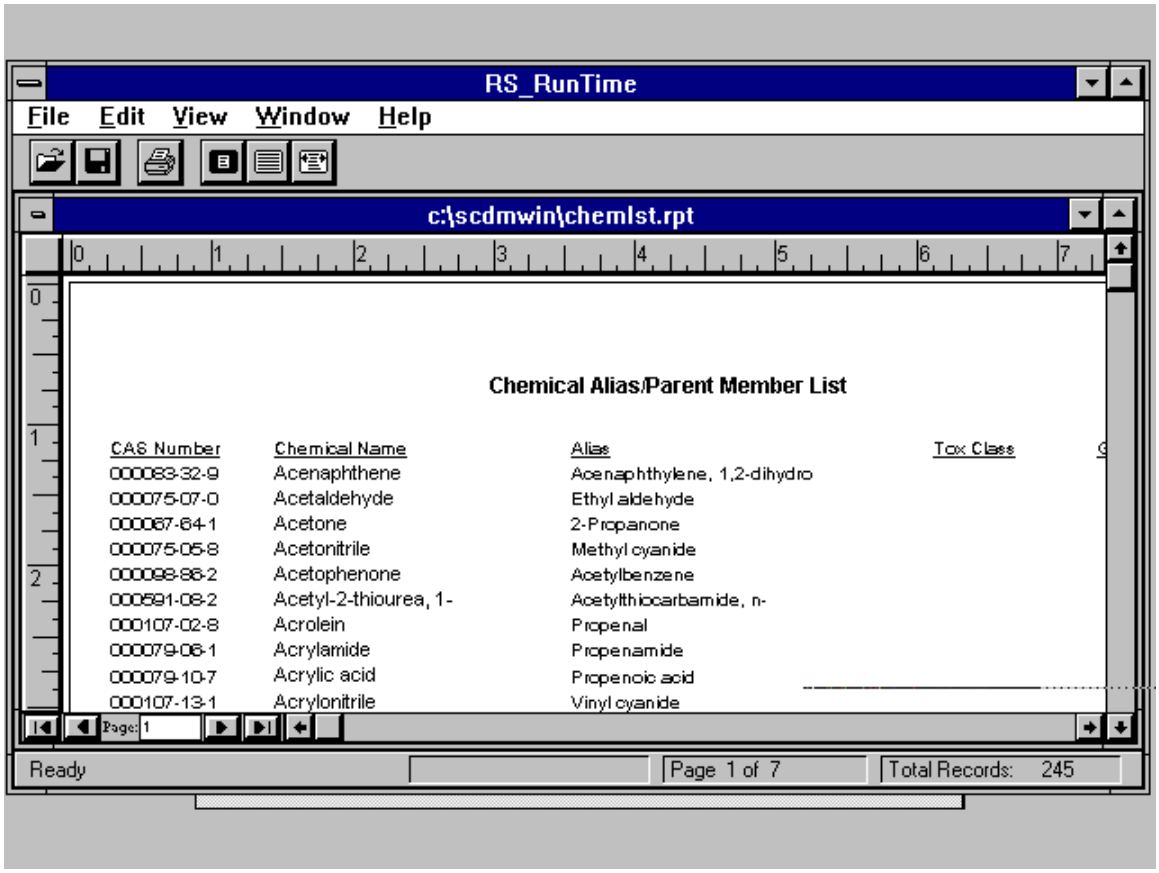
Report Module Option

The report icon (a hand holding a piece of paper) is an alternative method of printing. Clicking on the report icon starts the SCDMWIN report module and brings up a report for all chemicals. Please note that the search criteria selected to view and print the screens does not carry through to the report function; data for all chemicals will be printed in the report function. The report module allows users to preview the report before printing, and to print to a printer or to a file. Figure 2.2 is an example of the report module.

Upon activation, the application provides a preview of the report first. The report module offers several functions from the menus and icons on the top of the screen. The information bars at the bottom of the screen communicate to users their location in the report, the number of pages and records, and "hints" that display when the mouse is idled on the icons at the top of the screen.

To change the size of the report on the view screen, the user may zoom in and out from the View menu. The scroll bars on the side of the report allow users to move up and down on the current page. The navigation arrows at the bottom of the screen can be used to move from one page to another within the report. The page number of the report on display is listed in the information box on the bottom of the screen. Some reports contain one page of information per chemical while others print multiple chemicals per page. In either case, chemicals are sorted alphabetically by chemical name.

FIGURE 2.2 REPORT MODULE SCREEN



Some screens require legal size paper when printing through the report module. In these cases, the SCDMWIN program will alert the user that legal size paper is required when the report module is activated. Users must change their printer default to legal size (8 ½ by 14 inches) prior to printing and reset to the default size (8 ½ by 11 inches) after printing. Printer defaults may be changed through the Print Setup option from the File menu. When ready to print, users have two options:

- select Print from the File menu for the same three options as the print screen function (e.g., print all pages, selected page, or a range of pages); or
- click on the printer icon in the toolbar to automatically print the entire report.

In addition to printing to a printer, the user may choose to print the report to a file. To execute this activity, select Save As from the File menu, the type of file desired (spreadsheet, text, etc.), and the name and path of the file.

To exit the report module, select Exit from the File menu to close the report or double click on the upper left hand corner of the screen. Closing the report module will return the user to the previous screen.

SECTION 3

SCDMWIN SCREENS

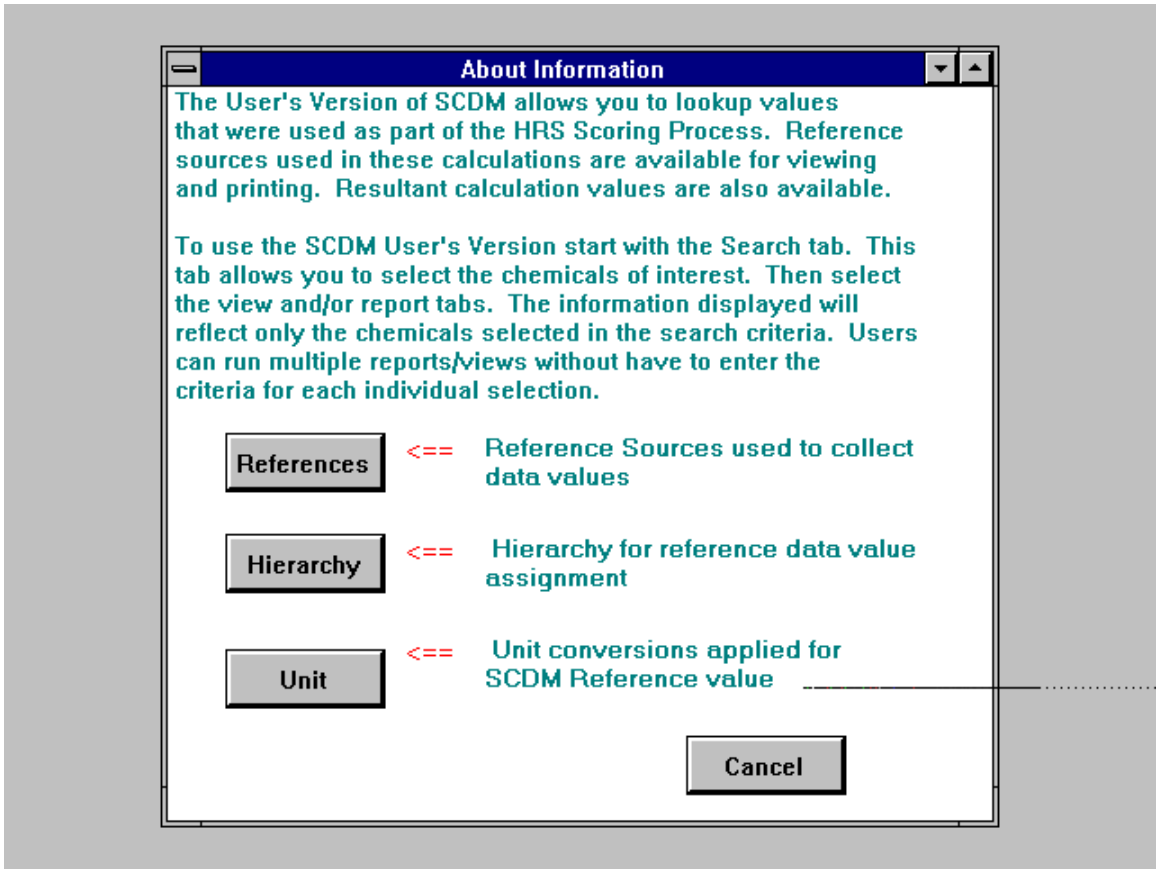
3.1 WELCOME TO SCDM SCREEN

As described above, the Welcome to SCDM screen is the first screen a user will encounter. The function of the Welcome screen is to provide four menu options for the user. The menu options are displayed in tabs at the bottom of the Welcome screen. To select an option, position the mouse on the tab of the desired menu screen and click the left mouse key. Closing the Welcome screen will exit the user from SCDMWIN; this can be done by double-clicking on the upper left hand corner of the screen, or by clicking once on the upper left hand corner and selecting close from the menu.

3.2 ABOUT SCREEN

The first menu screen, labeled About, contains information used to calculate current version data results on reference sources, hierarchy assignments, and unit conversions. The About screen has a button for each of the above topics (see Figure 3.1). By clicking on the desired button, the user is moved to the corresponding data screen, each of which is described below. To exit the About

FIGURE 3.1 ABOUT SCREEN



screen, click on the Cancel button in the lower right hand corner of the screen, or double-click on the upper left corner of the screen. As mentioned above, users should close menu screens when finished to conserve memory resources.

3.2.1 Reference Sources

The Reference screen contains bibliographic references for each of the source tables. This table can be accessed by clicking on the References button on the About screen. Data pertaining to references are used to maintain a bibliography of the information sources used to create SCDM reports. The following fields constitute the Reference Sources tables:

- Acronym: an acronym for the reference and is used to identify the source of information in the SCDM database;
- Name: the description of the acronym;
- Author: the author of the reference;
- Pub Date: the date that the reference was published;
- Publisher: the name of the publisher of the reference;
- Publication City: the city (and possibly state) of publication; and
- Title: the complete title of the reference.

An example of the reference source table is seen in Figure 3.2 To view a reference, scroll through the sources using the forward and back arrow keys located on the top left hand corner of the screen. To print the information on a source, click on the printer icon located near the upper right hand corner. At each print request, the user will have the opportunity to select which page, or pages, to print. To print information for all 28 source tables, select All on the Print box and click on OK. To print information only for the source displayed on the screen, choose Selection from the Print box. To print a range of pages, select Pages and enter the page range. For example, to print the first 10 references, enter from 1 to 10. To exit the Reference Sources screen and return to the About screen, double-click on the upper left hand corner of the screen.

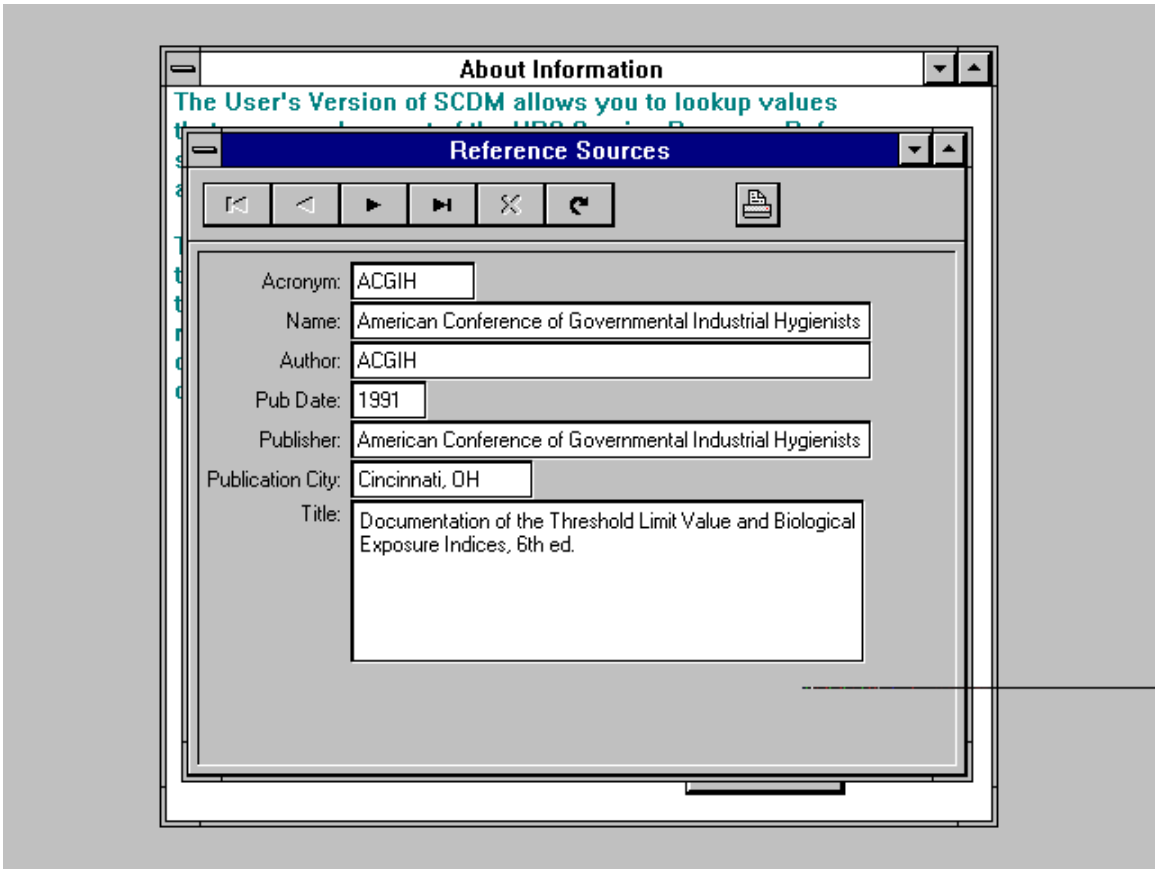
3.2.2 Hierarchy of Assignment

Each chemical in the SCDM database is associated with several data elements. Typically, a particular data element can be found in more than one source. SCDMWIN allows a maximum of five references to be used as possible sources of data for each data element. The acronyms of these sources are maintained in the SCDMWIN Hierarchy of Assignment screen. Each data element has an established hierarchy for data sources that ranks them in order of preference. When SCDMWIN assembles data from the sources, the hierarchy is scanned sequentially from highest rank to lowest rank. The highest-ranking reference source that contains data for a particular element is selected, and the value in that reference is the value associated in calculating factor and benchmark values. If the highest-ranking source has a null value in a field, SCDMWIN selects the next source in the reference hierarchy until a valid source is identified. It is important to remember that when zero is entered into a field, it is considered a valid value, not a null value.

The hierarchy for a particular data element can be viewed by clicking on the Hierarchy button on the About screen. The hierarchy screen is similar to the reference source screen shown in Figure 3.1. The following fields are included in the Hierarchy of Assignment screen:

- Data Value: data element and acronym description;
- Method: method of hierarchy (currently the method for all data elements is sequential, i.e., 1st, 2nd, etc.); and
- Reference: source table that data element references.

FIGURE 3.2 A REFERENCE SCREEN



3.2.3 Units Conversion

The final option on the About screen menu is the Unit Conversion table. The Unit Conversion table contains information that instructs SCDMWIN on how to convert source table data to a usable SCDM form. For instance, LD50 dermal values from the Registry of Toxic Effects of Chemical Substances (RTECS) Source Table can be given in ml/mg, mg/mk, ppm, or mL/kg. The Units Conversion Table instructs SCDMWIN to convert all LD50 dermal values in the various source tables into units of mg/kg for consistency. A units conversion entry exists for each kind of unit conversion that is necessary for each source table.

To access the Unit Conversion screen, click on the Unit button on the About screen. The data elements on the screen include the following:

- Acronym: acronym for the source table;
- Data Element: piece of data contained in the source table;
- Units: the unit of the source table data element; and
- Standard Units: the unit to which SCDMWIN converts the source unit.

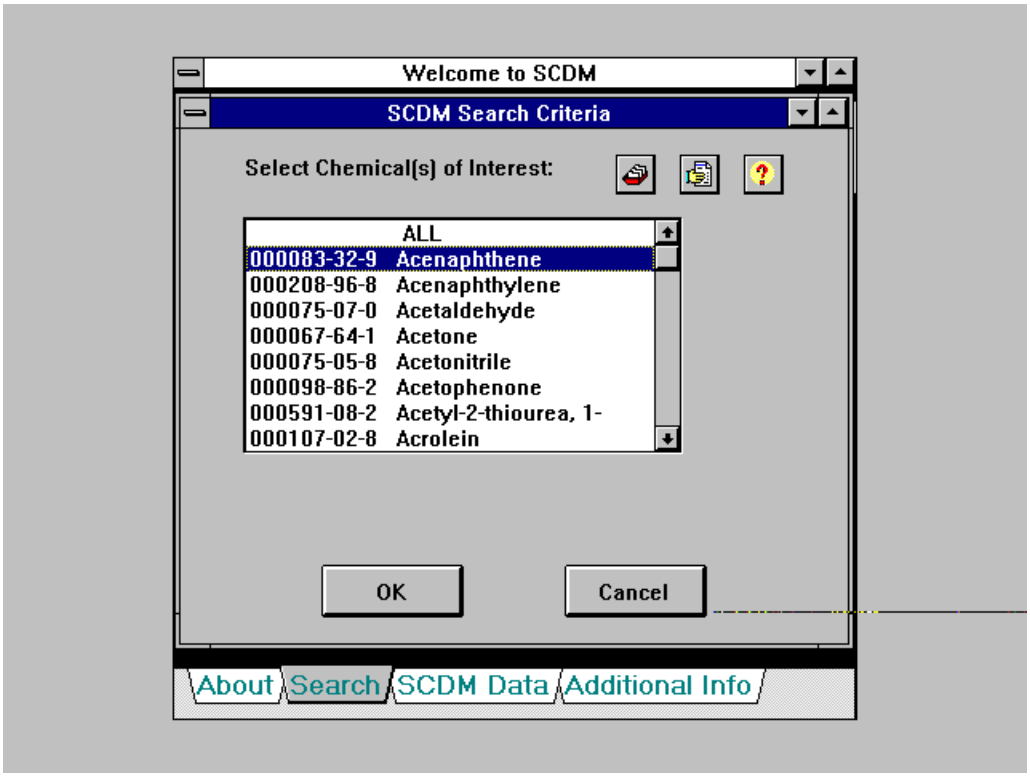
To view the unit conversion table for a particular data element, scroll through the data elements using the navigation keys located on the top left hand corner of the screen. To print the information on an element, click on the printer icon located near the upper right hand corner.

3.3 SCDM SEARCH CRITERIA SCREEN

The second menu screen available from the Welcome screen is the SCDM Search Criteria screen. At the Search screen, the user may select the chemicals of interest that will be maintained through all of the desired informational lookups. This allows users to view multiple screens without further identification of desired chemicals. For example, to view reference information on Acenaphthene, select Acenaphthene on this screen and press OK. Each screen requested in both the SCDM Data menu and the Additional Info menu will display information only for Acenaphthene.

The SCDM Search Criteria screen is shown in Figure 3.3. The screen shows a list box of all chemicals available. The user may select certain chemicals of interest, or select to view all chemicals. The entire list of chemicals can be viewed by using the scroll bars on the left side of the list box. Users requiring assistance in finding a particular chemical – by CAS number or chemical name – may click on the file folder icon. This icon displays a Find box which the user may utilize to search for keywords, phrases, or CAS numbers. At the Find What line, enter the chemical/CAS number or partial name/number of the chemical to be found. Click on the Find Next button to begin the search. SCDMWIN will highlight each chemical that met the find criteria. The user should scroll through the list to find the highlighted chemicals.

FIGURE 3.3 SCDM SEARCH CRITERIA SCREEN



To select a single chemical or all chemicals, the user can click directly on the name of the chemical. This will cause the chemical to be highlighted. Figure 3.3 shows that the chemical Acenaphthene is highlighted. To select multiple chemicals, users may utilize the functions of the <Ctrl> and <Shift> keys:

- To select a group of chemicals listed sequentially, click on the first chemical, hold down the <Shift> key, and click on the last chemical. All chemicals between the first and last chemical will be highlighted; or

- To select a group of chemicals that may or may not be listed next to each other, click on the first chemical, hold down the <Ctrl> key, and click on the other desired chemicals one at a time.

The question mark icon on the Search screen provides selection procedure instructions. Clicking on the question mark icon will bring up the procedures box; clicking on the question mark icon a second time will close the procedures box.

The report icon (hand/paper) allows a user to print a report showing a chemical Parent/Alias List. Clicking on this button will take the user to the SCDMWIN report module and preview the report sorted by chemical name. As discussed in Section 2.3, the user previews the report and then prints the report if desired. Although the report module only brings up the report sorted by chemical name, this data is also available in a separate report sorted by alias. This report can only be accessed through the report module as there is no corresponding icon on the screen. To access this report, a user should click on the report icon to bring up the report module and the first report (sorted by chemical name). Once in the report module, the user may select Open from the File menu, and select CHEMLST2.RPT from the c:\scdmwin directory. This will open the Parent/Alias report sorted by alias name. Both of these reports can be printed following the instructions listed in Section 2.3.

Once the chemicals of interest have been selected, click on the OK button to activate the search. This will close the SCDM Search Criteria screen, store the chemical query for future screens, and return the user to the Welcome screen. To cancel the search, click on the Cancel button. Two important notes about the query process should be highlighted.

- At this time, unless the user selects to view all chemicals (selecting ALL from the list), the maximum number of chemicals that can be selected at one time is 12. If users highlight more than 12 individual chemicals at a time, error messages will appear when attempting to view data screens. Users may select up to 12 individual chemicals per query or select all chemicals.

- After the first use of the SCDMWIN program, the search query always contains the criteria of the previous query. Unless new criteria are selected, the criteria from the previous query will remain active.

3.4 SCDM DATA SCREEN

The third menu screen available from the Welcome screen is the SCDM Data screen. This screen is the gateway to the SCDM data. Users may view and print data from reference sources and from the SCDM results tables (see Figure 3.4). Only the chemicals selected in the SCDM Search Criteria screen will be displayed, regardless of the table chosen. Both types of data screens available from this screen are discussed below.

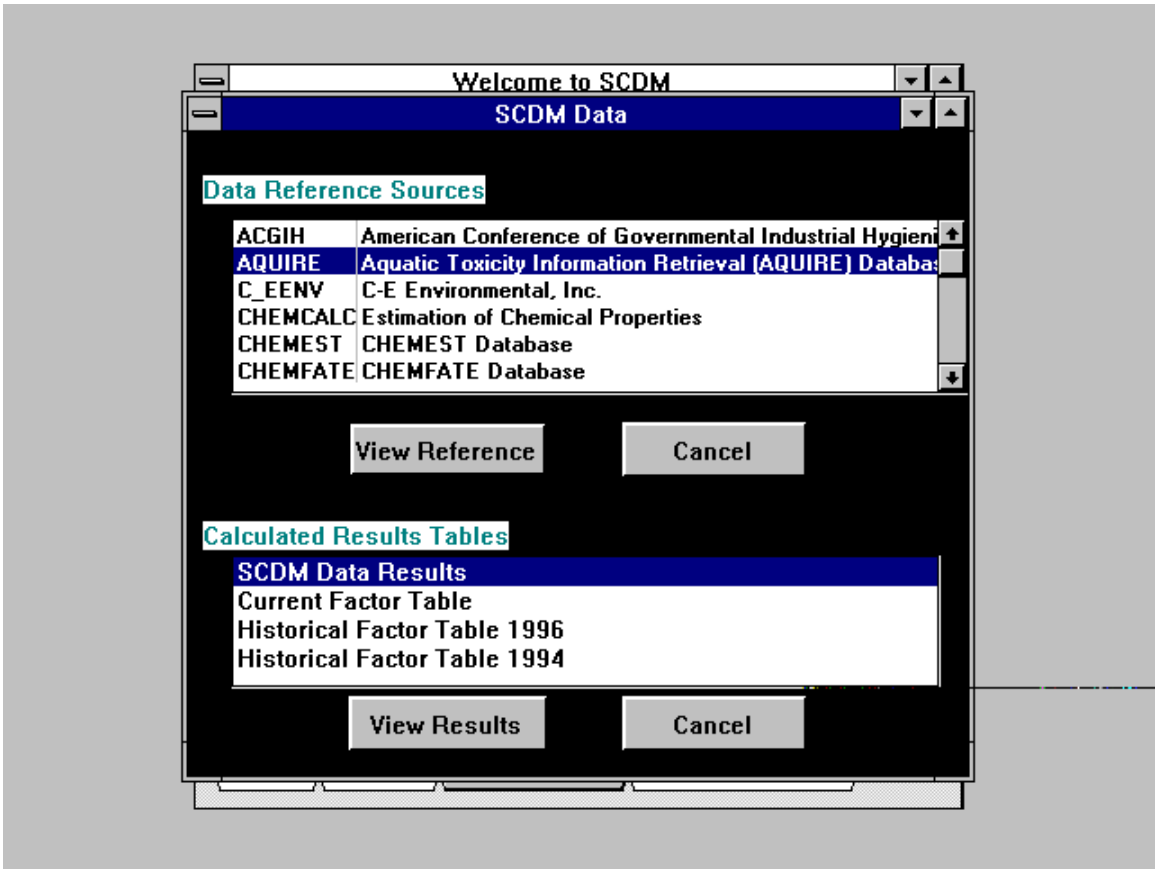
3.4.1 Data Reference Sources

The Data Reference Source tables contain chemical data for a variety of physical and chemical characteristics for each SCDM contaminant. Each source table lists values for a subset of all the data elements used by SCDMWIN to assign HRS factor values and benchmarks. A source table may not contain information for all chemicals contained in the SCDM database.

SCDMWIN uses 28 sources to assign HRS factor values and benchmarks. Information from these sources can be viewed from the Data Reference Sources menu in the SCDM Data screen. A scrolling pick-list contains the acronym and description of all 28 data sources. To view a data source, select the reference of interest and click on the View Reference button.

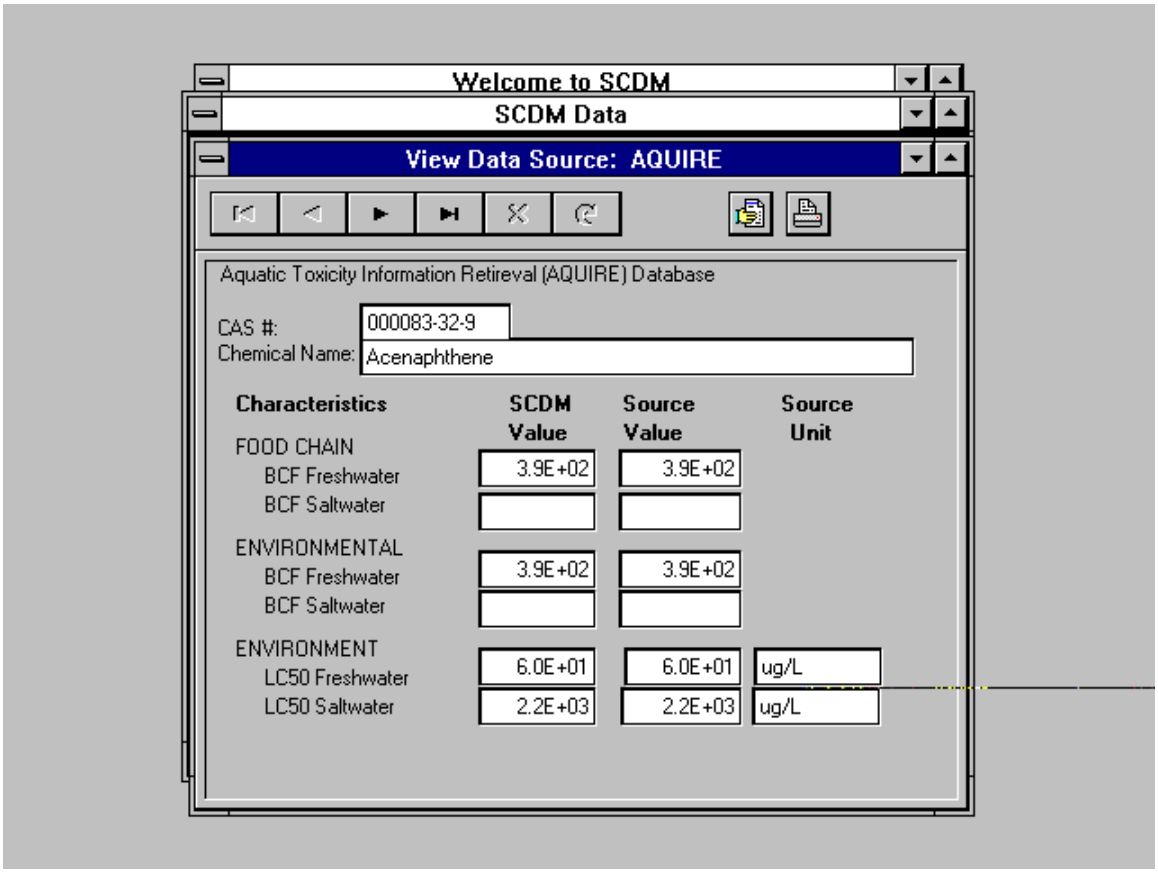
This action will bring up the data source, displaying the data only for the chemicals that were chosen in the SCDM Search Criteria screen. An example of a reference screen is shown in Figure 3.5. Because each source contains varying pieces of information, each source table has a unique format. For the selected chemicals, reference values and corresponding units are displayed. The SCDM value represents the values used by SCDM (in standard units) for HRS factor value and benchmark assignments.

FIGURE 3.4 SCDM DATA SCREEN



Moving around a data source screen is similar to other screens. If multiple chemicals were selected in the search criteria, users may scroll through the chemicals using the navigation arrow keys in the upper left hand section of the screen. In addition to displaying data, the Data Reference Sources screens have printing options from the screen and the report module. Exiting the data reference source screens is also similar to other screens. Double-click on the upper left hand corner of the screen, or click once and select Close from the menu. A user is then returned to the SCDM Data screen.

FIGURE 3.5 DATA REFERENCE SOURCE SCREEN

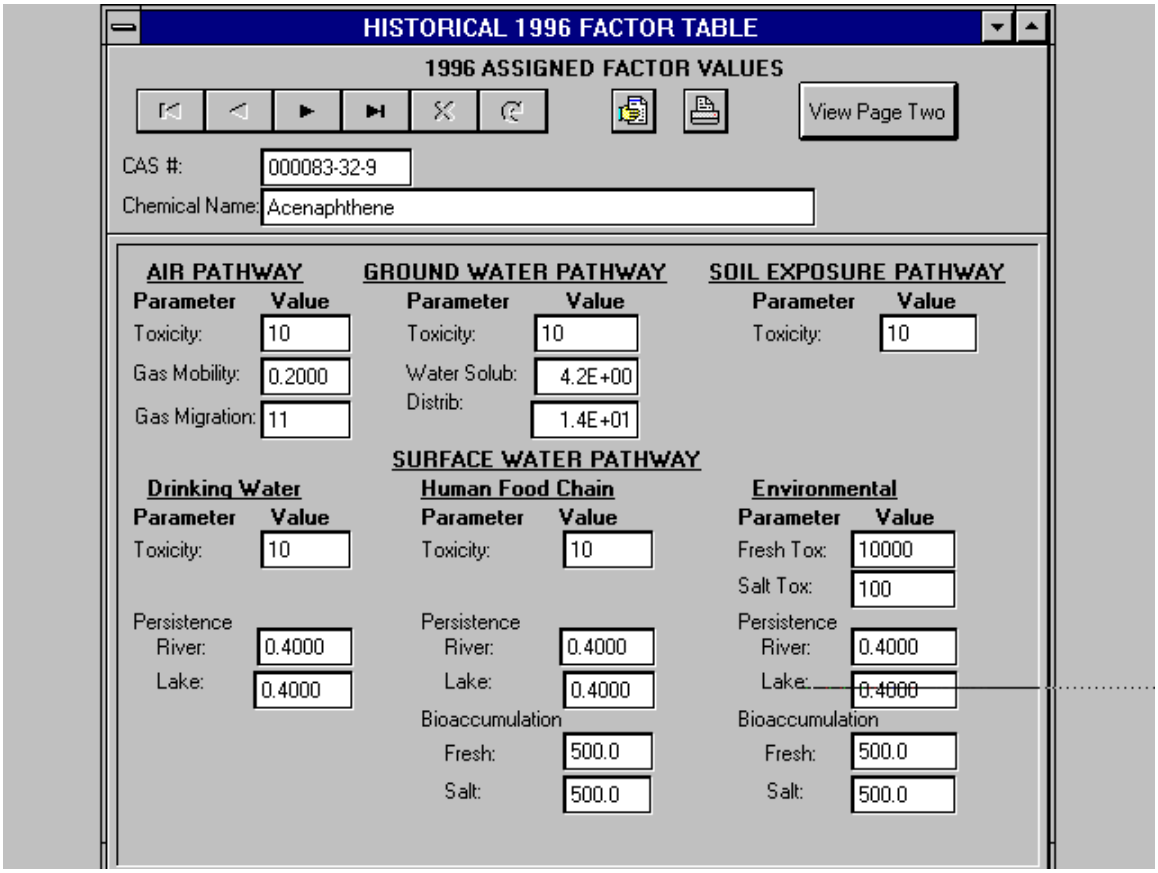


3.4.2 Results Tables

The second option in the SCDM Data menu screen is to view the calculated results tables. The first two options are to view SCDM Data results and the current factor table. Historical factor tables from 1996 and 1994 are also available.

Like the data reference sources screens, the SCDM Data results and factor tables are shown only for the chemicals selected in the search screen. Likewise, two printing options are available. Users may print the screens to print data for selected chemicals, or activate the report module to print the data for all chemicals. Because the results tables contain more information than the reference sources, they span two screens each. As shown in Figure 3.6, the Current Factor Table, a button near the upper right hand corner, View Page Two, shows the user the second page of information. From the second page of screens in this section, only the print screen option is available. As noted in Section 2, the print screen function will print only the information that is visible on the screen. Users may try maximizing the window by clicking on the upper arrow at the right hand corner of the screen, or print the screen in sections.

FIGURE 3.6 CURRENT FACTOR TABLE SCREEN



Users may notice in the SCDM Data results screen that "THOMAS" is listed as a source for the volatility parameter. However, users will not find "THOMAS" listed as one of the 28 references used to compile SCDM data. Instead, "THOMAS" refers to the source of the formula that is used for computing volatility.

To exit the SCDM Data screen, click either the cancel button or double click on the upper left hand corner of the screen.

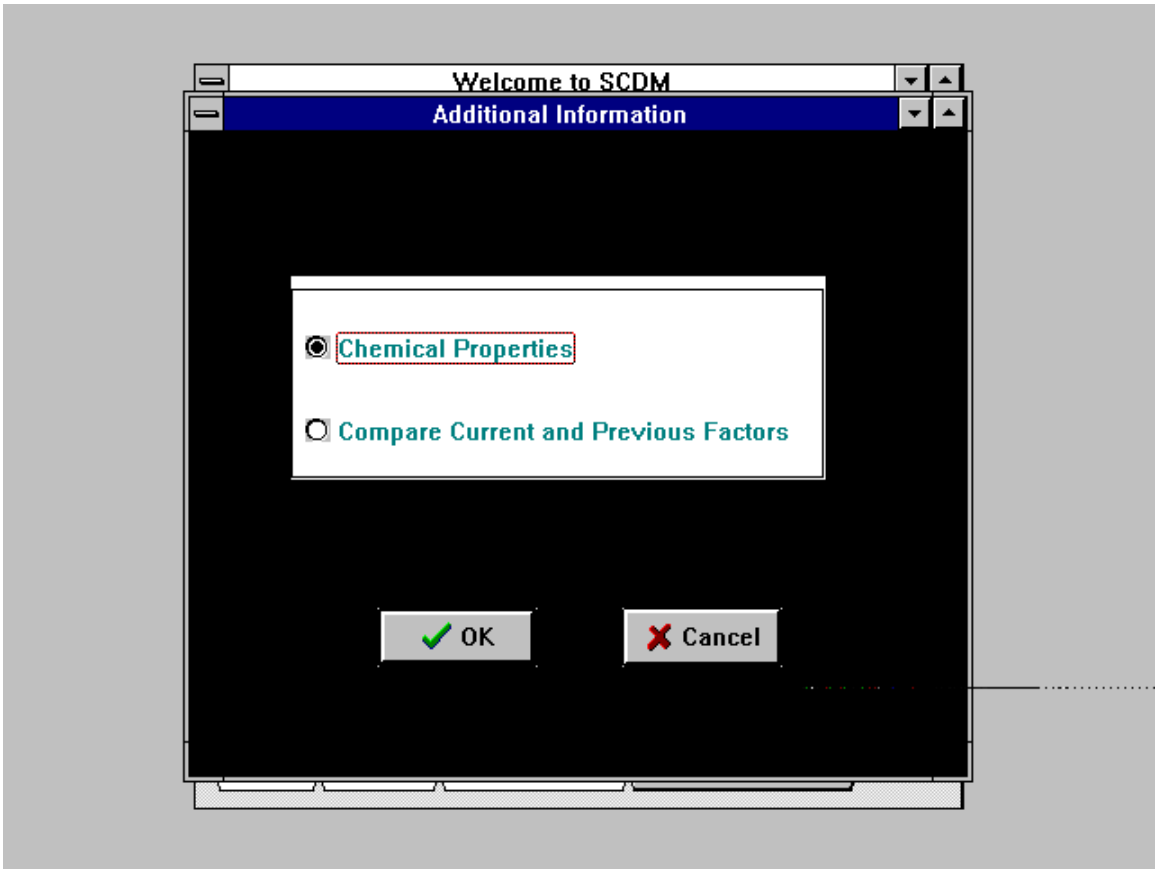
3.5 ADDITIONAL INFORMATION SCREEN

The final option from the Welcome screen is Additional Information. From the Additional Information tab, two data screens are available (see Figure 3.7). Each screen is described below. To view either screen, click on the circle next to the name of the screen and then click on the OK button. To exit the Additional Information screen, click on the Cancel button.

3.5.1 Chemical Properties

The first option from the Additional Information menu screen is to view Chemical Properties. To view this screen, click on the circle next to the Chemical Properties title and click on the OK button. Like the SCDM data screens, the Chemical Properties screen will appear only for those chemicals selected in the search screen described earlier.

FIGURE 3.7 ADDITIONAL INFORMATION SCREEN



The Chemical Properties screen includes chemical identity and physical properties for the chemicals selected in the search screen. The Chemical Properties screen is similar to the SCDM Data Screens. The following information is displayed for each chemical:

- Chemical Name--the name to be used in all SCDM reports and files. Hazardous substance synonyms are maintained in the Synonyms List.
- CAS Number--the 11-character CAS number, padded with leading zeroes if required.
- Formula--the molecular formula for the compound.
- Molecular Weight--the sum of the atomic weights of all atoms in the molecule.
- Density--Five fields are associated with density. The first field is the mass per unit volume. The second field contains the corresponding units, preferably grams/milliliter. The third field contains the temperature at which the density was measured, and the fourth field contains the temperature scale used, preferably Celsius. The fifth field contains an acronym representing the source of the density information..
- Organic Substance--An "X" in the box is for an organic substance. A blank box indicates an inorganic substance.
- Metal Containing -- An "X" in the box is for a metal or metalloid, or for a compound that contains a metal or metalloid. A blank box indicates that the substance is not, or does not contain, a metal or metalloid
- Radioactive Isotope--An "X" is displayed if the substance is a radioactive isotope, an blank box if it is not. A hazardous substance in SCDM cannot be both a radioactive element and a radioactive isotope

SCDMWIN contains data on both radioactive isotopes and radioactive elements. For example, uranium is a radioactive element, and uranium 233 is a radioactive isotope. SCDMWIN

reports factor values and benchmarks for individual radioactive isotopes. Toxicity and persistence information are collected for each isotope. Ground water mobility, gas migration and mobility, and bioaccumulation potential for each isotope of a radioactive element are derived from the chemical characteristics of the radioactive element.

- Radioactive Element--An "X" is displayed if the substance is a radioactive element, a blank box if it is not.
- Boiling Point--Five fields are associated with boiling point, similar to the information for density. The first field contains the boiling point value followed by the temperature scale used, preferably Celsius. The third field is the numerical value for the pressure at which the boiling point was measured, and the fourth field is the unit of pressure, preferably "Torr". The fifth field contains an acronym representing the reference used to obtain this information.
- Melting Point--Refer to Boiling Point discussion. Note that tests to determine the melting point are usually performed at the same pressure as the boiling point tests.

In addition, there may be entries in the following substitution class fields:

- Toxicity and Benchmarks--contains the CAS number of the parent chemical used to calculate the toxicity factor values and benchmark values.
- Ground water Mobility--contains the CAS number of the parent chemical used to calculate ground water mobility factor values.
- All Other Factors--contains the CAS number of the parent chemical used for half-life data, BCFs, and Log K_{ow}.

The last three fields are "chemical substitution classes" and contain several types of data. Certain groups of substances share these data. These groups of substances inherit one or more of their chemical substitution class data values from a common source, or "parent substance." Currently, only two groups of substances inherit data from a "parent substance": metal compounds and radioactive substances. For more details on the nature of "parent substances," refer to Section 2.2.8 of the Superfund Chemical Data Matrix report (EPA/540/R-96/028).

To print the chemical properties information, click on the printer icon near the upper right hand corner of the screen. This will bring up the print box where users have the option to print all chemicals in the query, the chemical presently shown on the screen, or a range of chemicals in the query. There is no report module for the Chemical Properties screen. To print chemical properties for all chemicals, select all chemicals in the Search screen prior to activating the Chemical Properties screen and select all in the print box. To exit the Chemicals Properties screen, double click on the upper left hand corner of the screen. Although the Chemical Properties screen only lists the parent CAS number, a list of CAS numbers and names can be found in the Search screen.

3.5.2 Compare Current and Previous Factors

The Compare Current and Previous Factors report compares the differences in the HRS factor values and benchmarks between the "previous" database and the "current" version containing any edits and modifications to the data. For each chemical, the report lists its CAS number, the data field acronym, a brief description of the data field, the previous value, and the current value. Data will be displayed only for the chemicals selected in the Search screen.

Printing options for the comparison table are similar to other screens. Users may print the screen for all or selected chemicals in the search query, or activate the report module to print a report for all chemicals. In the report module, one chemical and its associated data is printed per page. The report is alphabetical by SCDM chemical name. Because the comparison table contains more information than will fit on one screen, the table spans two

screens. A button near the upper right hand corner, View Page Two, shows the user the second page of information. This is similar to the Current Factor Table shown in Figure 3.6. From the second page of the screen, only the print screen option is available. To exit either page of the comparison table, double click on the upper left hand corner of the screen. This will return the user to the Additional Information screen.

APPENDIX A

TROUBLESHOOTING GUIDE

During testing and development of SCDMWIN, lessons were learned in regard to installation and operation of the program. The following table has been provided to highlight various difficulties users may have installing and operating SCDMWIN and the possible solutions to correct the error.

Problem/Error Message	Possible Solution
SCDM won't start	• Add the following to the autoexec.bat file before win.exe is loaded: C:\DOS\SHARE /F:5100 /L:500 • Increase the files and buffers in config.sys file • Verify that SCDMWIN is not loaded on a network windows configuration
Report Module won't open (e.g. RPTSMITH caused a general protection fault in module RS_SQLIF.DLL)	• Ensure that the c:\dos\share.exe /F:5100 /L: 500 is in the autoexec.bat file • Add the following to the rs_run.ini file in c:\scdmwin TempDataPath=c:\scdmwin • Run BDECFG.EXE file from File Manager. Choose Paradox driver, and ensure Net Dir points to c:\scdmwin • Close SCDMWIN, search for all *.LCK and PDOXUSRS.NET files and delete them • Add the following to the win.ini file located in the c:\windows directory: [DBD] workdir=c:\scdmwin [IDAPI] dllpath=c:\scdmwin configfile01=c:\scdmwin\idapi.cfg Access reports directly instead of through SCDMWIN. This can be done by double-clicking on RS_RUN.EXE in File Manager to open the report module, selecting Open from the File menu, and choosing the report you wish to open. Source reports are named using the acronyms from the list box in the SCDM Data Screen. Factor tables are named FACTORYY where YY is the year of the table. The SCDM Data Results table is called BASEDATA
Print Screen function not printing entire screen or entire image	• Print Screen function only prints what is visible on your screen. Try maximizing the screen or print the screen in sections (upper portion, lower portion) • Check timing settings for printing graphics

APPENDIX B

USER FEEDBACK FORM

SCDMWIN Version 1.0 User Feedback Form

Date: _____ Employer: _____

Name: _____ Occupation: _____

What do you use SCDM to do?

_____

_____

_____

_____

_____

Version 1.0 of SCDMWIN is the first release of the SCDM program in a Windows environment. The purpose of the User Feedback Form is to obtain input from users on the overall system design, organization, and useability, as well as ease of installation. Completion of this form and/or the provision of identifying information is completely voluntary. Responses from user feedback will be used only in enhancing the software for future releases. Forms may be mailed or faxed; please call the PREscore/SCDM Helpline at (703) 519-1046 for further information.

System Functionality

1. About Menu

   a. Do you find this menu useful? Yes No
   b. Is this menu complete? Yes No
   c. How does the About Menu compare to the DOS version About Menu?
   _____
   _____
   _____

   d. Would you change anything on this menu (add, remove, modify)?
   _____
   _____
   _____

2. Search Menu

   a. Do you find this menu useful? Yes No
   b. Is this menu complete? Yes No
   c. How does the SCDMWIN search process compare to the DOS version search process?
   _____
   _____
   _____

   d. Would you change anything on this menu (add, remove, modify)?
   _____
   _____
   _____

3. SCDM Data Menu

   a. Do you find this menu useful? Yes No
   b. Is this menu complete? Yes No

c. How does the viewing and printing process compare to the DOS version process?

_____
_____
_____

d. Would you change anything on this menu (add, remove, modify)?

_____
_____
_____

4. Additional Info Menu

a. Do you find this menu useful? Yes No
b. Is this menu complete? Yes No
c. How does the handling of the information on this menu compare to the DOS version counterpart?

_____
_____
_____

d. Would you change anything on this menu (add, remove, modify)?

_____
_____
_____

5. Can you use SCDMWIN to perform all the functions you use from the DOS version of SCDM? Yes No

If no, what function do you need that is not currently present in SCDMWIN?

_____
_____
_____

6. Can you use SCDMWIN to performmore functions you use from the DOS version of SCDM? Yes No

7. How would you compare the ease of use in performing these functions compared to the DOS version of SCDM? Easier Harder Same

8. Is there something you would like the SCDMWIN software to do that it cannot currently do?

_____
_____
_____

9. Is SCDMWIN successful in addressing issues/problems that you experienced in the DOS version? Yes No
If no, please specify:

_____
_____
_____

System Installation/ Operation

10. What problems did you experience installing the system?

_____
_____
_____

11. What problems did you experience operating the system (e.g., printing, chemical searches, report module, how screens were displayed on your monitor)?

_____
_____
_____

12. Was the troubleshooting guide useful when you experienced problems?

Yes No

If no, please specify:

_____
_____
_____

Please feel free to provide any additional thoughts, comments, or suggestions below or on an additional sheet of paper. Thank you for your input.